

Claims

1. A method of delivering a liquid to a CMP polishing pad comprising:  
supplying the liquid to a nozzle, the nozzle being oriented toward a polishing surface of the CMP polishing pad, wherein the liquid flows at a rate of less than or equal to about 100 cc per minute;  
supplying a pressurized carrier gas to the nozzle;  
substantially evenly spraying the liquid from the nozzle onto the CMP polishing pad.
2. The method of claim 1, wherein the liquid is a slurry.
3. The method of claim 1, wherein the liquid is DIW.
4. The method of claim 1, wherein the liquid is a cleaning solution.
5. The method of claim 1, wherein a pressure of the pressurized carrier gas is not sufficient to atomize the liquid as the liquid is sprayed from the nozzle.
6. The method of claim 1, wherein a pressure of the pressurized carrier gas is within a range of about 1 to about 10 psi.
7. The method of claim 1, wherein the carrier gas includes at least one of a group consisting of air, CDA, and an inert gas.
8. The method of claim 1, wherein a pressure of the pressurized carrier gas is sufficient to atomize the liquid as the liquid is sprayed from the nozzle.
9. The method of claim 8, wherein a pressure of the pressurized carrier gas is within a range of about 10 to about 50 psi.

10. The method of claim 1, wherein the nozzle includes a plurality of nozzles.
11. The method of claim 10, wherein a flow rate and a pressure applied to at least one of the plurality of nozzles can be controlled independent from a flow rate and a pressure applied to the remaining nozzles of the plurality of nozzles.
12. The method of claim 1, wherein supplying the liquid into a nozzle includes sequentially supplying a first liquid and a second liquid into the nozzle.
13. The method of claim 12, wherein the first liquid is a slurry and the second liquid is a rinsing solution.
14. A method of rinsing a CMP polishing pad comprising:
  - supplying a rinsing solution to a nozzle;
  - supplying a pressurized carrier gas to the nozzle;
  - directing a resulting spray from the nozzle toward the CMP polishing pad, the spray having a force sufficient to substantially dislodge a CMP byproduct contaminant from the CMP polishing pad.
15. The method of claim 14, wherein sufficient to substantially dislodge a CMP byproduct from the CMP polishing pad includes sufficient to break an electrostatic bond between the CMP polishing pad and the byproduct contaminant.
16. The method of claim 14, wherein the carrier gas has a pressure of about 10-50 psi.
17. A method of processing a wafer comprising:
  - applying a first slurry to a CMP polishing pad through a nozzle, wherein a pressurized carrier gas is also supplied to the nozzle;

applying a rinsing solution through the nozzle; and  
applying a second slurry through the nozzle.

18. The method of claim 17, wherein the nozzle include a plurality of nozzles.
19. A system for applying a liquid to a CMP polishing pad comprising:  
a nozzle directed toward the CMP polishing pad, the nozzle having a first and a second input, the first input being coupled to a first supply, the second input being coupled to a carrier gas supply.
20. The system of claim 19, wherein the nozzle includes a plurality of nozzles mounted in a manifold.
21. The system of claim 20, wherein a flow rate and a pressure applied to at least one of the plurality of nozzles can be controlled independent from a flow rate and a pressure applied to the remaining nozzles of the plurality of nozzles.
22. The system of claim 20, wherein the manifold includes:  
a manifold body having at least one fluid supply bore constructed through the manifold body; and  
at least one fluid supply port constructed along the manifold body to provide flow communication between the at least one fluid supply bore and an exterior of the manifold body, each of the at least one fluid supply ports being configured to be fitted to one of the plurality of nozzles.
23. The system of claim 20, further comprising:  
a controller, the controller including a recipe; and  
at least one valve for each of the plurality of nozzles, each of the at least one valves being coupled to the controller so that the controller can operate each of the at least one valves.